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Examining Consumer Perceptions of Demand-Based Ticket Pricing in Sport

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Abstract

Dynamic ticket pricing (DTP), a new revenue management (RM) strategy in sport, has grown in popularity in response to the demand-based ticket resale market. Previous research has examined the relationship between the primary and secondary ticket market and determinants of price in a DTP environment. However, research has not focused on consumer perceptions of DTP or resale prices. The purpose of this study was to examine consumer perceptions of demand-based pricing over time, to assess the influence of attitudes on perceived value and purchase intentions. Results indicated that time, team performance expectations, fairness perceptions, seat location, and ticket market influenced perceived value of the ticket. Interestingly, these variables were not consistent when examining purchase intentions. Further investigation of the perceived value/purchase intention relationship is warranted when using DTP. Sport managers can use these findings to better understand the impact of RM strategies like DTP on consumer attitudes and behaviors.

Introduction

The practice of dynamic ticket pricing (DTP), where ticket prices fluctuate daily based on market demand factors, is currently being used in some capacity by more than two-thirds of Major League Baseball (MLB) organizations (Sachdev, 2013). Additionally, the National Basketball Association (NBA), National Hockey League (NHL), college athletic departments, and football bowl game organizers have implemented this real-time approach to pricing (Drayer, Shapiro, & Morehead, 2014; Shea, 2014). This strategy is a direct response to the proliferation of the secondary ticket market through platforms such as StubHub. DTP implementation has resulted in revenue increases of 5-10% in low-demand situations and up to 30% in high-demand situations (Rishe, 2012).

According to Vincent Ircandia, vice president of business analytics and ticket operations for the Portland Trailblazers, "Fans today place different values on each and every game and we work hard to align our prices with fan perceptions" (Brettman, 2013, para. 2). However, questions remain about this strate-

gy due to challenges associated with fan perceptions of fairness, potential alienation of season ticket holders, the growth of the secondary ticket market, and matching price with consumer value for a ticket (Drayer, Shapiro, & Lee 2012).

DTP is based on the theory of revenue management (RM), in which prices for perishable products purchased in advance fluctuate to better reflect market demand over time (Kimes, 1994). RM has been investigated extensively as a pricing strategy within service industries such as airlines, hotels, and restaurants (Chiang, Chen, & Xu, 2007; Kimes, 1989, 1994; Ng, 2007; Wirtz & Kimes, 2007). Research in these industries has focused on pricing trends, managerial strategies, and consumer perceptions related to the practice.

RM theory has also been applied to spectator sport, which shares many common characteristics with traditional RM industries. Previous research has examined the RM framework within the context of sport ticket pricing (Drayer et al., 2012; Moe, Fader, & Kahn, 2011; Shapiro & Drayer 2012, 2014). However, consumer perceptions of RM strategies such as DTP have not

been examined within sport. The current study focused on this deficiency in the sport pricing literature.

Examining consumer perceptions of DTP, and RM in general, is important for two reasons. First, RM can be perceived as unfair by consumers, which can lead to negative attitudes, dissatisfaction, changes in perceived value of a product, and lower purchase intentions (Campbell, 2007; Haws & Bearden, 2006; Wirtz, Kimes, Theng, & Patterson, 2003; Wirtz & Kimes, 2007). Perceptions of price inequities or price gouging can have a negative impact on firm profits, specifically in customer-oriented industries (Kahneman, Knetsch, & Thaler, 1986; Wirtz et al., 2003). Second, the implementation of DTP impacts the consumer purchase process. Consumers now have the ability to check for ticket price changes over time. This is a common practice in traditional RM industries such as airlines and hotels. Consumers can decide to purchase tickets months prior to a game or watch for changes in price and availability as the game draws near (Dwyer et al., 2013). This practice may have an impact on the perceived value of a ticket and ultimately purchase intentions.

Additionally, there are factors with respect to the spectator sport consumer that may play a role in the viability of DTP. Tickets to sporting events can be resold, creating two separate markets in which a consumer can evaluate prices. The resale market does not exist in traditional industries using RM. Furthermore, team performance plays a significant role in demand for sporting events (Borland & MacDonald, 2003) and may impact perceptions of real-time price changes.

Therefore, the purpose of the current study was to examine the impact of consumer perceptions of price fairness, price changes over time, and team performance expectations on perceived value and purchase intentions for sport event tickets. The current study was conducted during a professional sport organization's initial implementation of DTP. Additionally, market-based factors such as time, ticket market, and seat location, which have been explored in previous DTP studies (Shapiro & Drayer 2012, 2014), were considered in conjunction with consumer perceptions.

The current study was unique in its design. The goal was to examine consumer perceptions of ticket price after an initial exposure (prior to a season) and over time as the game draws near. Therefore, consumers were exposed to a professional sport organization's ticket prices for various games before the season and at varying points leading up to the day of a game. This design provided an opportunity to assess perceptions of ticket prices in both markets and to place participants in a natural setting where it is common for consumers to assess real-time price fluctuations over a

number of days before making an advanced purchase decision (Dwyer et al., 2013).

Review of Literature

Revenue Management Theory

RM strategy, often used in the hotel and airline industries, consists of setting prices according to predicted levels of demand to meet the needs of different consumer groups (Kimes, Chase, Choi, Lee, & Ngonzi, 1998). RM is defined as "the application of information systems and pricing strategies to allocate the right capacity to the right customer at the right place at the right time" (Kimes et al., 1998, p. 33). RM is based on the concept of price discrimination, which is a price-setting strategy built on the notion that customers have different needs and price sensitivity. Therefore, it is in the best interest of organizations to fluctuate price in order to meet those needs (Kimes & Wirtz, 2003). Kimes (1989) developed a framework to assess whether RM strategy is applicable in certain industries, identifying factors such as the need for market segmentation, perishable inventory, advanced sales, low marginal sales, high marginal production costs, and fluctuating demand. RM has been successfully implemented in various industries in addition to airlines and hotels, including restaurants, movie theaters, concert halls, and theme parks (Goulding & Leask, 1997; Hartley & Rand, 1997; Kimes, 1994; Kimes & Wirtz, 2003).

Even with this success, many organizations have been slow to adopt RM due to concern over negative customer perceptions (Wirtz & Kimes, 2007). Researchers and practitioners in areas where advanced purchase of perishable inventory is common have argued that RM practices can be perceived as unfair by consumers and lead to decreases in satisfaction and purchase intentions (Choi & Mattila, 2004; Kahneman et al., 1986; Wirtz et al., 2003).

RM and Demand-Based Pricing in Sport

Professional sport organizations have embraced demand-based pricing over the past 10–15 years. Although pricing strategy has evolved over this time period, research regarding initial transitions to demand-based ticket pricing in sport is limited. In what was most likely the first investigation of demand-based pricing, Heilmann and Wendling (1976) examined a limited price discounting strategy implemented by the Milwaukee Bucks during the 1974–1975 season. Researcher findings showed discounted games increased attendance and led to more sellouts. This strategy was not adopted at the time, but led to variable ticket pricing (VTP), a more complex differential pricing strategy in which ticket prices are set in

advance based on factors such as opponent, day and time of the game, promotions, and holidays (Rascher, McEvoy, Nagel, & Brown, 2007). Rascher et al. (2007) explored VTP further and found that teams could increase ticket revenue around 7% through use of this strategy.

Due to the growth in ticket resale, several researchers began exploring transactions on the secondary market where prices change in real-time to reflect actual changes in consumer demand (Drayer & Shapiro, 2009; Drayer, Rascher, & McEvoy, 2012; Sweeting, 2012; Wantanabe, Soebbing, & Wicker, 2013). Researcher findings suggest when sport organizations do not price optimally, a considerable amount of consumer surplus is captured by the resale market. Additionally, partnerships between sport organizations and secondary market platforms, such as StubHub's agreement with MLB, have positively influenced price dispersion as teams are making more of an effort to vary ticket prices (Wantanabe et al., 2013)

Another organizational response to the proliferation of the resale market has been the implementation of DTP. DTP, where price discrimination occurs on a daily basis, was the first true RM strategy in sport (Drayer et al., 2012). Shapiro and Drayer (2012) extended previous research through the examination of both DTP and secondary market prices throughout an MLB season. The authors concluded DTP captured some of the consumer surplus from ticket resale, but price restrictions still exist in the primary market. Additional research has focused on factors that impact DTP and the relationship between DTP and the secondary ticket market (Moe et al., 2011; Paul & Weinbach, 2013; Shapiro & Drayer, 2014). Findings from these studies highlight ticket price determinants such as team and individual player performance, time, market, and seat location.

The previous work on demand-based pricing and the implementation of DTP is limited due to the relative infancy of the practice in sport and the tremendous growth of the online ticket resale market, which generates revenues of \$5 billion annually (Peoples, 2014). Each of the aforementioned demand studies examined factors that affect attendance and/or price, but did not consider consumer attitudes or behaviors. Spectator sport provides a unique context in which to examine consumer response to RM strategy. First, similar to airlines and hotels, sport events have a specified duration (Wirtz & Kimes, 2007). Organizations can use this predictable duration to alter prices at certain times and under certain conditions. However, research suggests consumers' preferences impact perceived value of the product and that those preferences change over time (Dwyer et al., 2013; Kimes et al., 1998). Additionally, a

unique component of sport is team performance. Previous researchers have suggested team performance impacts ticket price (Rishe & Mondello 2003, 2004; Shapiro & Drayer, 2014), yet the extent to which consumer expectations of performance influences perceived value and/or purchase intention is not known.

More research is needed regarding consumer attitudes towards DTP and secondary market ticket prices in addition to variables such as time, ticket market, and seat location to provide a holistic view of the demand-based pricing landscape in sport and the impact of RM strategies within this environment. Although DTP is becoming more popular in major sport leagues, some organizations are hesitant to implement this strategy due to the potential for negative customer response (Garno, 2013). The following sections focus on consumer attitude literature related to RM practices. These attitudes include perceived fairness, consumer perceptions of price changes over time, and perceived value.

Fairness

When it comes to the consumer decision-making process, perceived fairness can be an influential component. Rabin (2004) suggested that consumer behavior is a direct result of how individuals feel they are being treated. If individuals believe they are being treated fairly, they will reciprocate in a consistent manner. As a result, organizations measure and assess these perceptions when pricing products and services (Kahneman et al., 1986).

Fairness perceptions can have a great impact in RM industries, where prices fluctuate on a daily basis (Kimes, 1994). RM strategies have been perceived as unfair by consumers in certain conditions, which negatively impacts purchase intentions (Kahneman et al., 1986; Wirtz et al., 2003). Haws and Bearden (2006) found fairness perceptions played a significant role in consumer satisfaction and purchase intention. In particular, the characteristics of the seller and length of time prior to the transaction had the greatest influence on fairness. These fairness judgments are a direct method for assessing feelings of individual exploitation, which can be easily developed when a seller dynamically prices products and services (Lind, 2002). The impact of fairness perceptions is magnified in customer-oriented industries (Wirtz et al., 2003).

Sport organizations that incorporate DTP, in particular, should be cognizant of consumer perceived fairness, as Tripathi (2013) suggests the difference between dynamic pricing and price gouging resides in the mind of the consumer. Citing the dual entitlement principle in which consumers understand that a firm is entitled to a profit just as a consumer is entitled to a fair price,

Tripathi (2013) alluded to the potential for DTP to erode fan loyalty if perceived fairness is not monitored. Within the sport marketing literature, fairness perceptions of ticket price have not been thoroughly explored (Courtney, 2003). As DTP becomes more prevalent, there is a need to understand the impact of fairness perceptions related to RM pricing strategies.

Impact of Time

The impact of time within the sport consumer decision-making process requires additional inquiry. Dwyer et al. (2013) applied the generic advanced-booking decision model (Schwartz, 2000, 2006) to professional hockey through a quasi-experimental design. In general, advance-booking consumers, sport or otherwise, have several options when quoted a price. Schwartz (2008) was the first to include time as a variable within the advanced booking model. Schwartz found that holding all other factors constant, the decision to reserve a hotel (or buy a ticket) depends somewhat on how far out the purchase decision was from the date of stay (or game day).

For the most part, the literature on advanced selling comes almost exclusively from the field of travel and tourism, where price discrimination and RM strategies have been found to provide competitive advantages for gaining market share, ensuring capacity fulfillment, and creating profitability (Gale & Holmes, 1992; Shugan & Xie, 2000). Several similarities exist in the experiences of sport consumers and tourists with respect to product and service consumption (Drayer et al., 2012). For instance, similar to staying in a hotel, attending a sporting event is a perishable experience driven by the intersection of tickets available (hotel rooms available), ticket price (room rate), and consumer demand. Second, purchasing a ticket or reserving a room in advance have similar uncertainties related to availability as limited information about alternatives is readily accessible.

Dwyer et al. (2013) specifically targeted professional hockey fans to examine the impact of time within the advanced purchasing process. The authors found that the impact of time was an influential variable within the sport consumer decision process—specifically, the perceived likelihood of ticket availability and finding a lower priced ticket increased as the date of the game drew closer. The findings were the first for the field of sport marketing, yet represent only the beginning as the authors suggested the inclusion of several points of time to provide more insight to the specific influence of time.

The current study examined the impact of consumer perceptions of price changes in a similar RM environment to that of Dwyer et al. (2013). However, the cur-

rent study was conducted during the initial implementation of DTP and considers other consumer attitudes and price attributes in conjunction with perceptions of price changes over time. The impact of time is not known within this context.

Perceived Value and Willingness to Pay

The behavioral outcome most often associated with consumer research is the decision to purchase. However, there are sport-related studies that have focused on the maximum price consumers are willing to pay (WTP) (Carmon & Ariely, 2000; Drayer & Shapiro, 2011; Rosas & Orazem, 2014). Understanding consumers' WTP point is helpful for marketers as they attempt to set prices to better reflect perceived value of a product (Drayer & Shapiro, 2011).

Often through experimental or survey methods, researchers attempt to determine a respondents' WTP point through the contingent valuation method (CVM). Though the exact question format can vary, CVM research engages each respondent in a transaction and asks them directly to identify the highest price they would pay for the product. Additionally, CVM can be used to show the difference between WTP and price in an effort to measure perceived value for a product or service (Herath & Kennedy, 2004). This concept is called consumer surplus, and it has been conceptualized as the economic measure of consumer satisfaction (Marshall, 1980). As a means to assess value, consumer surplus through CVM has been utilized to evaluate the environment, tourism, and outdoor recreation.

Within the context of sport, Carmon and Ariely (2000) found that game significance, television viewership, financial considerations, and other environmental factors significantly impacted Duke University basketball fans' WTP for tickets. Drayer and Shapiro (2011) conducted a similar study and found that "fans who have stronger team identification or loyalty are willing to pay more to see the team play" (p. 397). Further, they split buyers into two groups in which one group saw the printed face value of the ticket and the other did not. This simple change in product characteristics had a significant impact on consumers' WTP (almost a \$14 difference in WTP between the two groups on average). Ultimately, changes in WTP may be due to changing product attributes within the context of an individual offer. In sport, this is critically important as product attributes (i.e., team and player performance) change almost daily.

Despite its importance in describing perceived value, consumer surplus as a form of CVM has yet to be used to value spectator sport pricing (Kanagal, 2013). Eggert and Ulaga (2002) determined that consumer satisfac-

Table 1
Sample Demographics and Purchase Behavior

AGE			EDUCATION		
Mean	29.679		High School / GED	1	3.3%
St. Dev.	7.045		Some College	9	30.0%
GENDER			PURCHASE FREQUENCY		
	<i>n</i>	%	4-year College Degree	14	46.7%
Female	3	10.0%	Master's Degree	6	20.0%
Male	27	90.0%	ETHNICITY		
INCOME				<i>n</i>	%
	<i>n</i>	%	Caucasian	26	86.7%
Less than \$25,000	3	10.0%	Other	4	13.3%
\$25,000-49,999	4	13.3%			
\$50,000-74,999	3	10.0%			
\$75,000-99,999	4	13.3%			
\$100,000-149,999	11	36.7%			
More than \$150,000	5	16.7%			

tion was an important substitute for perceived value within certain business markets, and the economic measure of consumer satisfaction has been quantified as the difference between one's maximum WTP point and price or consumer surplus (Marshall, 1980). Thus, operationalizing perceived value as a fan's consumer surplus was a logical extension for this examination of dynamic-based ticketing.

In summary, there has been a significant shift from traditional pricing to demand-based pricing in professional sport. Demand-based pricing can be applied within the context of sport through the RM framework, which was developed in the hotel and airline industries. The literature on this topic in sport ticket pricing is underdeveloped as the proliferation of the secondary market and strategies such as DTP are relatively new. Specifically, the research on consumer perceptions of demand-based pricing (i.e., fairness, expectations of price changes, team performance expectations) is limited and warrants further investigation. Additionally, the impact of consumer attitudes on perceived value and purchase intentions in conjunction with previously studied factors such as time, ticket market, and seat location is unknown.

Given the infancy of DTP in the primary market and price volatility in the secondary ticket market, it is critically important to gauge the impact of consumers' perceptions of prices over time in both markets. Additionally, consumer perceptions of price (after the initial exposure to tickets in both markets) were assessed to understand impacts on perceived value and purchase intention. These factors have been identified in the previous RM literature, but have not been examined in spectator sport, with a vibrant resale market and team performance impacts. Therefore, the follow-

ing research questions were developed to examine consumer perceptions of ticket price in a demand-based pricing environment:

RQ1: Is there a difference in consumers' perceived value for sport event tickets based on time, ticket market, and/or seat location?

RQ2: To what extent do consumer perceptions of price fairness, likelihood of price changes, and expectations of team performance influence perceived value of sport event tickets in both the primary and secondary markets?

RQ3: To what extent do consumer perceptions of ticket value, price fairness, likelihood of price changes, and expectations of team performance influence likelihood to purchase sport event tickets in both the primary and secondary markets?

Method

Participants and Procedure

Through a partnership with an ESPN MLB beat reporter, fans were invited to participate in a study about ticket prices during an MLB team's inaugural implementation of DTP. A total of 81 fans agreed to participate in the study, with each being assigned one home game for the team being examined. A total of 30 participants completed multiple data collections over the course of the season and provided usable data sets totaling 720 unique observations for this study. This accounted for 38% of the team's home games in 2012, covering every month of the season. Sample demographics and purchase behavior results are available in Table 1. According to the survey results, the sample appears to be a relatively highly attached group of baseball fans with team and sport attachment scores of

6.411 ($SD = .852$) and 5.289 ($SD = 1.768$) on a seven-point scale, respectively. In addition, the sample was moderately familiar with ticket purchasing from both primary and secondary markets with scores of 3.983 ($SD = .737$) and 4.133 ($SD = .928$) on a five-point scale, respectively.

Participants were asked to collect prices on four dates prior to their assigned game. The first date was three weeks prior to the season and consistent across all participants. The three remaining dates were 15, five, and one day prior to a participant's assigned game. Participants were directed to collect prices from both the team's website and StubHub for three different seat locations (a low, mid-tier, and premium seat). Participants were then asked attitudinal and behavioral questions related to the tickets each time they observed a ticket price.

Each participant was given a personalized spreadsheet that had columns for all price data and attitudinal and behavioral questions. Additionally, participants were provided an instruction sheet and were reminded by email a week before each data collection date. Since each participant collected 24 ticket prices (two markets, three seat locations, over four time periods) and responded to perception questions for each ticket price, the total number of observations for analysis was 720.

Instrumentation

Four single-item attitudinal/behavioral measures were developed for this study, and included likelihood to purchase, likelihood the price will change, fairness perceptions, and likelihood that the team would win the game. Each item was measured on five-point Likert-type scales (Not at All Likely to Very Likely and Extremely Unfair to Extremely Fair). The single-item fairness measure was adapted from previous work in which fairness perceptions were examined to identify a potential impact on consumer attitudes and behavior (Kimes, 1994; Kimes & Wirtz, 2003). The likelihood to purchase item was adapted from previous consumer-based sport ticket pricing studies (Dwyer et al., 2013; Shapiro, Dwyer, & Drayer, 2013). Likelihood of ticket price change and likelihood of team winning measures were developed for this specific study. Finally, the one-item WTP measure was open ended, in which participants were asked to provide the highest price they would be willing to pay for a given ticket at the time of the price observation.

Single-item measures such as the items used in the current study may not be appropriate in all research settings. However, in the case of this study, single items were used to simplify the process for participants who were asked to provide individual perceptions of six different ticket prices on four different occasions.

Previous research has highlighted the value of using single-item scales, particularly in cases in which simplicity is paramount (Bergkvist & Rossiter, 2007).

Data Analysis

To answer RQ1, a mixed ANOVA was conducted on the data collected 15 days, five days, and one day before the game. The dependent variable was perceived value. Perceived value was operationalized by taking the difference between an observed ticket price and a participant's willingness to pay for that ticket (P-WTP). Perceived value, defined by Holbrook (1994), is the difference between the benefits of a product and the costs. McDougall and Levesque (2000) conceptualized it as consumers' cognitive evaluation of what they have received for what they have given. Given these definitions and recommendations from Murray and Howat (2002) and Cronin, Brady, and Hult (2000) that price must be part of the perceived value equation, P-WTP was utilized to measure the difference between the maximum price a consumer was willing to pay and the actual cost of attendance. Time was the within-subjects variable and ticket market and seat location were the between-subjects variables.

To answer RQ2 and RQ3, two separate multiple linear regression models were developed to examine the specific cross-section data collected three weeks before the MLB season. The first regression examined factors influencing perceived value for tickets. Independent variables in the model included seat location, market (primary or secondary), perceived fairness, perceived likelihood of price change, days before the game, and perceived likelihood the team would win. The second regression model examined factors influencing likelihood to purchase. An ordinal or PLUM (Polytomous Universal Model) regression was conducted due to the scaled nature of the dependent variable. Independent variables in this model were the same as above except perceived value was included.

Results

Descriptive statistics for price data and attitudinal/behavioral measures are provided in Table 1. Average ticket price in the primary market was \$94.80 ($SD = 75.30$) and average ticket price in the secondary market was \$91.44 ($SD = 90.38$). When broken down by price tier, average ticket prices for lower-tier seats were \$29.51 ($SD = 13.63$) in the primary market and \$22.14 ($SD = 17.55$) in the secondary market. Average ticket prices for mid-tier seats were \$73.57 ($SD = 30.22$) in the primary market and \$72.40 ($SD = 35.11$) in the secondary market. Finally, average ticket prices for upper-tier seats were \$181.32 ($SD = 60.86$)

Table 2
Descriptive Statistics

Variable	Mean	SD
Ticket Price		
Primary Market (PM) Overall	94.80	75.30
PM Lower-tier	29.52	13.63
PM Mid-tier	73.57	30.22
PM Premium-tier	181.32	60.86
Secondary Market (SM) Overall	91.44	90.38
SM Lower-tier	22.14	17.54
SM Mid-tier	72.40	35.11
SM Premium-tier	186.77	97.47
Willingness to Pay		
Overall	62.15	48.97
PM	61.55	47.63
SM	61.37	50.66
Purchase Intention		
Overall	2.30	1.36
PM	2.17	1.25
SM	2.45	1.44
Price Change		
Overall	2.47	.836
PM	2.60	.782
SM	2.39	.875
Fairness		
Overall	2.93	1.24
PM	2.76	1.11
SM	3.16	1.31
Likelihood of Team Win		
Overall	3.13	.992
Note: Willingness to Pay, Purchase Intention, Price Change, Fairness, and Likelihood of Team Win were all measured on 5-point Likert-type scales.		

in the primary market and \$186.77 ($SD = 97.47$) in the secondary market.

On average, the WTP was about the same for primary market tickets (\$61.54, $SD = 47.63$) compared to secondary market tickets (\$61.37, $SD = 50.66$). WTP did not appear to be influenced by market price for comparable seats. Overall, participants' likelihood to purchase tickets at a given price was minimal ($M = 2.17$, $SD = 1.25$). Additionally, likelihood of price changes over time ($M = 2.60$, $SD = .782$) and perceptions of fairness ($M = 2.76$, $SD = 1.11$) were moderate. Participants felt the team was generally likely to win the game in question ($M = 3.13$, $SD = .993$).

With regard to RQ1, the mixed design ANOVA model in which perceived value was the dependent variable provided statistically significant results for Time ($F[2,173] = 3.263$, $p = .041$, $\eta_p^2 = .024$) and the interaction of time and seat location ($F[4,348] = 4.161$, $p = .003$, $\eta_p^2 = .06$). The within-subjects results for time indicated a statistically significant increase in perceived value between 15 days and five days before the game; however, the effect size was generally small. In terms of time and seat location interaction, the significant perceived value change occurred between 15 days and five days, but only for the premium seats, with a moderate effect size. The remaining interaction results were not statistically significant.

With regard to RQ2, examining perceived value based on the initial exposure to ticket prices before the season only, the perceived value for tickets was \$41 below the observed price in both the primary and secondary market, on average. The regression model for RQ2 was statistically significant ($F[7,172] = 23.414$, $p < .001$) and the R^2 value was .488. Detailed independent variable results are available in Table 2. For every positive unit change in the likelihood of the team winning (on a five-point scale), perceived value of the ticket increased by approximately 40%. Additionally, for every positive unit change in fairness perceptions (on a five-point scale), perceived value of the ticket increased by approximately 50%. The perceived likelihood of price change and days before the game were not statistically significant.

The ordinal regression model utilized to answer RQ3, which examined purchase intention based on the initial exposure to ticket prices before the season only, was also statistically significant ($\chi^2[8] = 174.00$, $p < .001$). The Nagelkerke R^2 value equaled .655, suggesting a good fit to the data. The independent variable results are available in Table 3. Perceived fairness had the strongest positive relationship with purchase intentions. Additionally, both seat location and likelihood of price change appeared to play a significant role in purchase intentions. Purchase intention for lower-tier seats was highest, followed by mid-tier seats and premium seats. In terms of price change, the higher the likelihood of a price change the more likely a participant was to purchase a ticket. Finally, perceived value had a significant relationship with purchase intention. This relationship was slightly negative.

Table 3
OLS Regression Results - DV = Perceived Value of Ticket

Variable	U-Beta ^a	<i>t-value</i>	<i>p-value</i>
Days before the game	-.019	-.241	.810
Perceived change in price	-2.82	-.476	.635
Perceived fairness of price	-23.77	-4.92	<.001
Perceived likelihood team win	-17.53	-3.11	.002
Market ^a	29.07	3.45	.001
Seat Location 1 ^b	-53.40	-3.92	<.001
Seat Location 2 ^b	-60.23	-5.24	<.001

^a Unstandardized Beta coefficients
^b Beta changes for low and mid-tier seat locations compared to a premium seat location

Table 4
Ordinal Regression Results - DV = Likelihood to Purchase

Variable	Estimate	<i>Wald</i>	<i>p-value</i>
Days before the game	-.003	.985	.321
Perceived change in price	.633	7.559	.006
Perceived fairness of price	1.260	28.416	<.001
P-WTP	-.018	4.802	.028
Perceived likelihood team win	-.083	.134	.715
Market ^a	.199	.337	.562
Seat Location 1 ^b	1.344	4.773	.029
Seat Location 2 ^b	.747	1.722	.1898

^a Odds changes for secondary market compared to primary market
^b Odds changes for low and mid-tier seat locations compared to a premium seat location

Discussion

As sport ticket pricing strategy continues to shift toward a demand-based focus and consumers become more accustomed to real-time price changes on both the primary and secondary market, it is important to understand attitudes and behaviors related to those price changes during the course of a season. Sport consumer behavior as it relates to ticket pricing becomes more important within the context of an RM framework, in which optimal pricing is a result of understanding shifts in consumer demand over time in advanced purchase environments.

The current examination supports the work of Drayer et al. (2012), in which the RM framework is adapted to fit the spectator sport environment. This study extends the RM theory by investigating consumer perceptions of real-time pricing strategy within sport, similar to research that has been conducted in the airline, hotel, and restaurant industries (Kimes, 1994; Kimes & Wirtz, 2003; Wirtz & Kimes, 2007). This study also extends our knowledge of consumer

perceptions of ticket price within the sport industry, which has received limited attention (Drayer & Shapiro, 2011; Dwyer et al., 2013). Spectator sport provides a unique environment in which to examine RM, due to a viable ticket resale market and the impact of team performance on demand for sporting events.

The current findings are consistent with previous literature highlighting the important roles of time, team performance, and attitudes such as fairness perceptions and likelihood of ticket price changes as a sporting event draws near (Drayer & Shapiro, 2009; Dwyer et al., 2013; Moe et al., 2011; Shapiro & Drayer 2012). However, the current study helps to extend the RM literature by not only examining consumer perception of the practice in a new environment, but by combining variables such as time, market, and seat location with consumer perceptions of fairness, time changes, and performance expectations into one study. Additionally, the study design was new to sport, allowing participants to collect prices in two markets simultaneously and provide attitudes and intentions at the time of exposure, mimicking the current ticket purchase

process. The following sections highlight the theoretical and practical implications of these findings.

The Importance of Time

RQ1 focused on the impact of time on perceived value for sport tickets in a demand-based environment with two market options. Consumers' perceived value significantly changed over time, but only between two weeks and five days before the game. Additionally, the interaction between perceived value and seat location was significant, indicating a difference in premium seat prices around two weeks prior to the game.

Figure 1 provides a closer examination of concurrent price and WTP changes over time. The price changes for dynamically priced tickets and the secondary ticket market look very similar to Shapiro and Drayer's (2012) findings with limited DTP price changes, but with more dramatic secondary market price reductions as the game draws near. Interestingly, WTP values more closely mirror the DTP prices compared to secondary market prices. It appears as if DTP pricing is more reflective of what fans are willing to pay compared to secondary market prices, most notably prior to the season. The secondary market prices shift towards WTP as the game draws near, as expected in a demand-based pricing environment with no restrictions.

Additionally, in the current study, perceived value was represented by the difference between the asking price of the sellers and the consumers' WTP. Subsequently, any change in perceived value may be due to either changes in prices or changes in WTP. Indeed, according to Figure 1, the change in perceived value could be driven by sellers who are lowering their

asking prices, especially in the secondary market. These dramatic secondary market price changes were quite clear in the analysis by Shapiro and Drayer (2012), whose research considered only the sellers' asking price and not consumers' perception of value.

On the other hand, the study by Dwyer et al. (2013) examined how some consumer perceptions change over time (e.g., perceptions of ticket availability and likelihood of price reductions). The authors also suggested that consumers' attitudes began to change significantly approximately two weeks prior to the event; however, they did not examine how these changing attitudes influenced perceived value. With the current study it appears that the changing seller behaviors is what is driving the change in perceived value and not consumers' WTP, which remains relatively consistent. So, while some consumer attitudes may change over time, their perception of what the ticket is worth may not respond as dramatically. For consumers, understanding that sellers' asking prices begin to fall approximately two weeks prior to an event is valuable information in the ongoing struggle to obtain the lowest possible price.

In terms of seat location, only premium seat prices significantly differed over time. This finding is also consistent with Shapiro and Drayer (2012), who found the most dramatic price shifts occur in the premium seat locations. One explanation for this is the considerably high premium seat prices set by the secondary ticket market. Resellers appear to inflate the premium seat prices, which generally drop substantially as the game draws near (similar to the overall trend repre-

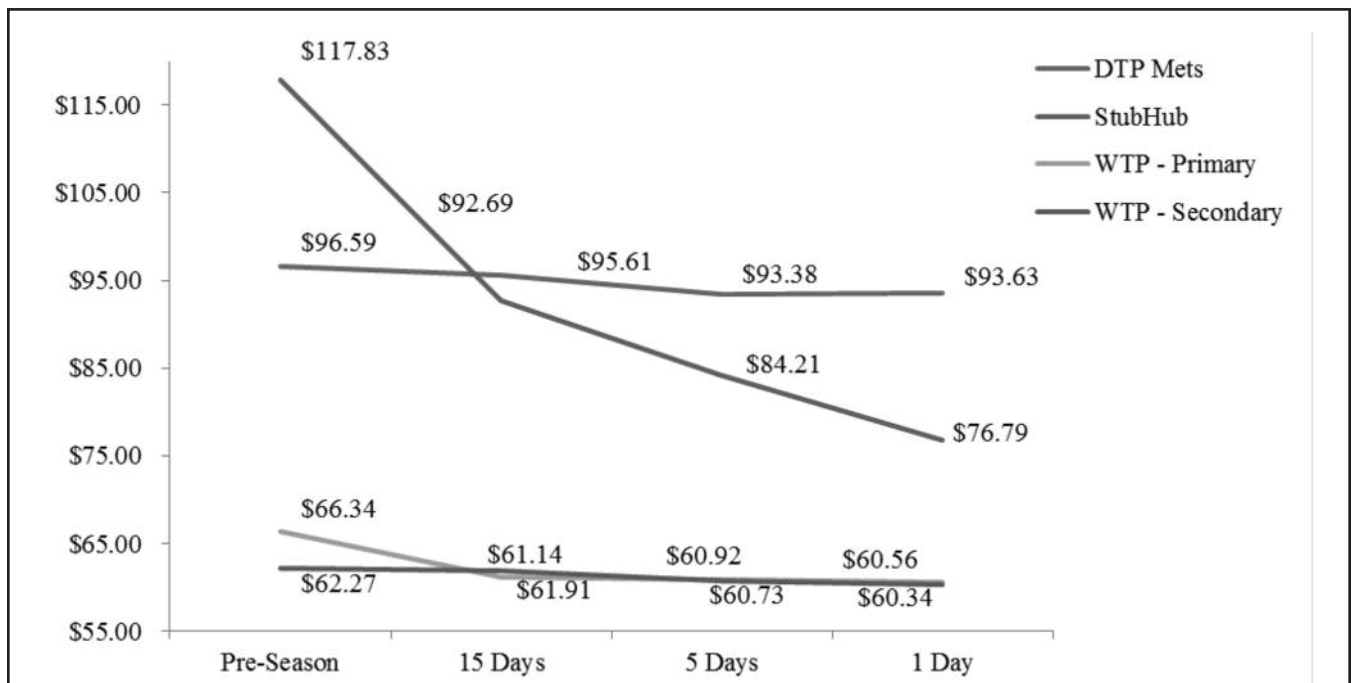


Figure 1. Ticket prices and WTP broken down by market.

sented in Figure 1). The premium seat location is more volatile in terms of price due to the fact that ticket brokers are looking at these seats as a revenue priority (Sauter, Poltrack, & Allen, 2012).

For RQ2 and RQ3 the time variable as a whole did not have a significant influence on perceived value or purchase intentions. This finding further demonstrates that certain time intervals are playing a more significant role in consumers' perception of value than others, most notably around two weeks prior to a game taking place. Although the current results are consistent with previous research suggesting time is an important factor regarding consumer perceptions of ticket price in demand-based markets, more research is needed to further explain that role.

Fairness

Perceptions of fairness have a significant influence on perceived value of tickets and purchase intentions. The impact of fairness in the current study is consistent with the general marketing literature on the role of fairness (Kahneman et al., 1996; Kimes, 1994; Kimes & Wirtz, 2003) and within the context of sport event tickets (Shapiro et al., 2013). In a demand-based pricing environment, where prices fluctuate daily, consumers will assess the level of fairness regarding those price changes and respond accordingly. Fairness can be a powerful component of consumer behavior and these perceptions have an influence on future purchase intentions (Kahneman et al., 1986). Therefore, price changes cannot be based solely on an RM formula adjusting price at the appropriate place and time. Those responsible for setting price, regardless of market, must be sensitive to consumer responses to those changes. The importance of considering fairness becomes magnified with respect to the sport organizations due to the fact that DTP prices generally increase over time (Shapiro & Drayer, 2012). Additionally, unlike most resellers, who can hide beyond the anonymity provided by platforms such as StubHub, sport organizations are susceptible to public reaction to price changes that may be considered unfair. Finally, sport organizations must take fairness perceptions into consideration as consumers now have two markets to choose from when making a ticket purchase. Perceptions of fairness could be a differentiating factor when deciding whether to buy a ticket directly from the team or on the resale market.

Perceived Value vs. Purchase Intentions

Fan expectations of team performance, fairness perceptions, seat location, and ticket market influenced perceived value of the ticket. The significance of these factors is consistent with the demand literature

(Rascher, 1999; Welki & Zlatoper, 1994) and pricing literature (Drayer & Shapiro, 2011; Shapiro & Drayer, 2012). Interestingly, these variables were not completely consistent in the likelihood to purchase model. For example, fairness and seat location significantly influenced purchase intention, but market and fan expectations of team performance did not.

Consumer behavior researchers have consistently found a strong positive correlation between one's perceived value and purchase intentions (Kwon, Trail, & James, 2007; Teas & Agarwal, 2000). Thus, it was surprising that the same statistically significant factors that influenced perceived value did not influence purchase intentions at a statistically significant level. A few mitigating factors exist that may explain this unique finding. For instance, advertising researchers Grewal, Monroe, and Krishnan (1998) found that acquisition value mediated the relationship between perceived value and purchase intentions. Acquisition value was defined as a more universal and enduring type of value that accounts for both price and quality (Grewal et al., 1998). In addition, travel and tourism studies have uncovered the importance of customer satisfaction as a mediator between perceived value and purchase intentions (Ryu, Han, & Kim, 2008; Tarn, 1999).

With respect to the current study's context and results, perceived value was measured in part through WTP. This metric has been found to be an important determinant of value, but it may be too narrow when one considers the larger prospect of attending an MLB game including constraints such as traffic, weather, and in-home viewership. Thus, factors such as global or acquisition value and customer satisfaction may be creating noise within our investigation, specifically when one thinks of the enduring nature of team fandom. In other words, team performance may impact perceived value in the short run, but highly identified fans are swayed less by on-field performance as their attachment has been found to be more stable over time (Matsuoka, Chelladurai, & Harada, 2003). Regardless, further investigation of the perceived value/purchase intention relationship in a demand-based ticket pricing environment is warranted.

Ticket Market Effects

Ticket market had a significant influence on perceived value of tickets prior to the season, but did not influence perceived value over time as respondents were repeatedly exposed to price changes. Additionally, market did not influence purchase intentions based on ticket prices prior to the start of the season. There have been mixed results in terms of market influence in relation to sport ticket pricing. Drayer (2011) and Shapiro and Drayer (2012) argue that with the prolifer-

eration and legitimization of the secondary ticket market and the use of DTP by sport organizations, the primary and secondary ticket will begin to merge and consumers will be comfortable purchasing in either market. The current findings partially support this sentiment. When first exposed to ticket prices at the beginning of the season, participants valued secondary tickets \$29 higher compared to primary tickets. Although perceived value was generally below ticket prices in both markets, it appears as if the initial secondary market prices inflated perceived value for those tickets. The tickets for both markets were for identical seat locations, but the higher initial price in the secondary market may have influenced respondent value of those tickets. This finding is consistent with the literature on face value and the anchoring effect of pricing (Drayer & Shapiro, 2011).

However, over the course of the season, participants were exposed to price changes over time. When examining the data over the course of multiple observations, participants valued tickets in both markets similarly. Perhaps the exposure to ticket prices on both markets for multiple periods allowed the participants to assess price changes concurrently, resulting in similar value perceptions across markets. The inconsistent findings regarding market and perceived value warrant further investigation, as previous literature supports the notion that perceived value has an influence on purchase intentions (Kwon et al., 2007; Teas & Agarwal, 2000). Additionally, market did not influence purchase intentions directly. Perhaps perceived value acts as a mediating variable between exposure to price and purchase intention, which is supported within different contexts in the consumer behavior literature (Kwon et al., 2007; Kwon, Pyon, & Choi, 2014).

As DTP gains more popularity it will be important to examine the relationship between the primary and secondary ticket market from both a consumer and managerial perspective. Consumers are becoming more comfortable with shopping for tickets in either market, so managerial decisions will need to reflect these attitudes. One example of this is Ticketmaster's TM+ initiative, in which primary and secondary ticket listings will be located on a single event page (Fisher, 2013).

WTP-Price Gap

The substantial deficit between a consumer's WTP point and the price of the ticket ($M=\$41$) is an interesting result though not necessarily novel. This phenomenon is essentially why and how the secondary ticket market has exploded. There are numerous factors sports fans consider before attending a game, and the result of these variables is fan perceived value. The considerable difference between the two totals could be the result of the

DTP system not being sensitive enough to account for daily variable change, a potential study bias where we forced respondents to evaluate a specific game, or a substitution effect. MLB games are a relatively elastic sport product with 81 home games. Regardless of the reason, the current study was exploratory, and this result warrants further investigation.

Limitations and Future Research

The current study was delimited to one MLB team. This was done in an effort to study the consumer response to the initial year of DTP implementation. However, consumers of different teams and leagues may react differently to demand-based pricing, particularly as the pricing strategy becomes more familiar to consumers. Future research should extend this exploratory effort by examining multiple teams that have implemented DTP.

Second, the researchers attempted to collect consumer data for all home games during the course of one season. Participants were asked to collect data on four different occasions throughout the season. This data included six different price points per date and participants were asked to provide individual opinions and attitudes for each price. The nature of this data collection led to respondent attrition, which reduced our number of participants from 81 to 30. Although this sample of participants is low, each participant was responsible for 24 observations ($N=720$). Still, the low sample size may cause sampling error, which could have impacted some of the findings. Future research should attempt to simplify the process or find more willing respondents (perhaps with an incentive) in order to increase sample size and cover more games.

Finally, while valuable in understanding day-to-day shifts in demand, this study (and previous studies) are limited due to the fact that only a certain number of tickets are available for sale at any given point in time, and this number is never truly known as changes in demand will affect the number of people willing to sell their tickets. One of the difficult challenges with data collection of this kind is access to ticket supply and transactional data. Future studies, perhaps through a partnership with a professional sport organization, should attempt to ascertain ticket supply and transactional data to expand upon our knowledge of demand-based ticket pricing and consumer response to the current pricing environment.

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